

CLAIMS

- 1 1. A method for restoring adjacencies between a router and its neighbors during reload of
 2 routing software on the router, the method comprising the steps of:
 3 placing an interface of the router in a predetermined state that enables the router
 4 to receive incoming Hello packets from its neighbors over a computer network;
 5 creating a unicast Hello packet in response to receiving an incoming Hello packet
 6 from each neighbor; and
 7 sending the unicast Hello packet to each neighbor from whom it has received an
 8 incoming Hello packet to thereby prevent the neighbor from dropping its adjacency with
 9 the router.

- 1 2. The method of Claim 1 further comprising the steps of:
 2 determining if a neighbor data structure exists for each neighbor sending an in-
 3 coming Hello packet; and
 4 if not, creating a neighbor data structure for each neighbor sending the incoming
 5 Hello packet.

- 1 3. The method of Claim 2 wherein the predetermined state is a Waiting state with an as-
 2 serted Preempt flag.

- 1 4. The method of Claim 3 further comprising the step of providing the Preempt flag
 2 within the neighbor data structure.

- 1 5. The method of Claim 1 wherein the routing software is Open Shortest Path First
 2 (OSPF) routing protocol software.

- 1 6. The method of Claim 1 further comprising the steps of:
 2 in response to the step of placing, sending empty link state Update packets from
 3 the router over the interface;

4 receiving the empty link state Update packets at the neighbors; and
5 in response to the step of receiving, resetting an inactivity timer for the router at
6 each neighbor to thereby prevent the neighbor from resetting its adjacency with the router
7 before the router sends the unicast Hello packet.

1 7. Apparatus for restoring an adjacency between a router and its neighbor during reload
2 of routing software on the router, the apparatus comprising:

3 an interface adapted for placement into a predetermined state that enables the
4 router to receive an incoming Hello packet from the neighbor over a computer network;
5 a processor coupled to the interface; and
6 a unicast Hello packet created by the processor in response to receiving an incom-
7 ing Hello packet from the neighbor, the unicast Hello packet sent to the neighbor to
8 thereby prevent the neighbor from dropping the adjacency with the router.

1 8. The apparatus of Claim 7 further comprising, wherein the predetermined state is a
2 Waiting state with an asserted Preempt flag:

3 a memory coupled to the processor; and
4 a neighbor data structure stored in the memory, the neighbor data structure con-
5 taining information pertinent to the adjacency formed between the router and neighbor,
6 the neighbor data structure further configured to store the Preempt flag.

1 9. The apparatus of Claim 8 further comprising:

2 an empty link state Update packet created by the processor and multicasted over
3 the network in response placement of the interface into the Waiting state with an asserted
4 Preempt flag; and

5 an inactivity timer for the router stored at the neighbor, the inactivity timer reset
6 in response to receiving the empty link state packet at the neighbor to thereby prevent the
7 neighbor from resetting its adjacency with the router before the router sends the unicast
8 Hello packet.

1 10. Apparatus for restoring an adjacency between a router and its neighbor during reload
2 of routing software on the router, the apparatus comprising:
3 means for placing an interface of the router in a predetermined state that enables
4 the router to receive incoming Hello packets from its neighbors over a computer network;
5 means for creating a unicast Hello packet in response to receiving an incoming
6 Hello packet from each neighbor; and
7 means for sending the unicast Hello packet to each neighbor from whom it has re-
8 ceived an incoming Hello packet to thereby prevent the neighbor from dropping its adja-
9 cency with the router.

1 11. The apparatus of Claim 10 further comprising:
2 means for determining if a neighbor data structure exists for each neighbor send-
3 ing an incoming Hello packet; and
4 means for creating a neighbor data structure for each neighbor sending the incom-
5 ing Hello packet, if the neighbor data structure does not exist.

1 12. The apparatus of Claim 11 wherein the predetermined state is a Waiting state with an
2 asserted Preempt flag.

1 13. The apparatus of Claim 12 further comprising means for providing the Preempt flag
2 within the neighbor data structure.

1 14. The apparatus of Claim 13 wherein the routing software is Open Shortest Path First
2 (OSPF) routing protocol software.

1 15. The apparatus of Claim 14 further comprising:
2 means for sending empty link state Update packets from the router over the inter-
3 face; and
4 means for resetting an inactivity timer for the router at the neighbor in response to
5 receiving the empty link state Update packets, the reset inactivity timer preventing the

6 neighbor from resetting its adjacency with the router before the router sends the unicast
7 Hello packet.

1 16. A computer readable medium containing executable program instructions for restor-
2 ing adjacencies between a router and its neighbors during reload of routing software on
3 the router, the executable program instructions comprising program instructions for:
4 placing an interface of the router in a predetermined state that enables the router
5 to receive incoming Hello packets from its neighbors over a computer network;
6 creating a unicast Hello packet in response to receiving an incoming Hello packet
7 from each neighbor; and
8 sending the unicast Hello packet to each neighbor from whom it has received an
9 incoming Hello packet to thereby prevent the neighbor from dropping its adjacency with
10 the router.

1 17. The computer readable medium of Claim 16 further comprising program instructions
2 for :
3 determining if a neighbor data structure exists for each neighbor sending an in-
4 coming Hello packet; and
5 if not, creating a neighbor data structure for each neighbor sending the incoming
6 Hello packet.

1 18. The computer readable medium of Claim 17 wherein the predetermined state is a
2 Waiting state with an asserted Preempt flag.

1 19. The computer readable medium of Claim 18 further comprising program instructions
2 for providing the Preempt flag within the neighbor data structure.

1 20. The computer readable medium of Claim 19 further comprising program instructions
2 for:

- 3 in response to the step of placing, sending empty link state Update packets from
- 4 the router over the interface;
- 5 receiving the empty link state Update packets at the neighbors; and
- 6 in response to the step of receiving, resetting an inactivity timer for the router at
- 7 each neighbor to thereby prevent the neighbor from resetting its adjacency with the router
- 8 before the router sends the unicast Hello packet.